

- Name each sheet/table so they are meaningful standalone.

SheetA - Costs_Initial Variables

SheetB - Cost_Experiment

SheetC - Taste_Experiment

- Which grill type is more fuel efficient based on sheet A?

We can clearly see that the propane griller is more fuel efficient in comparison to the charcoal griller

- Which grill type has more market share?

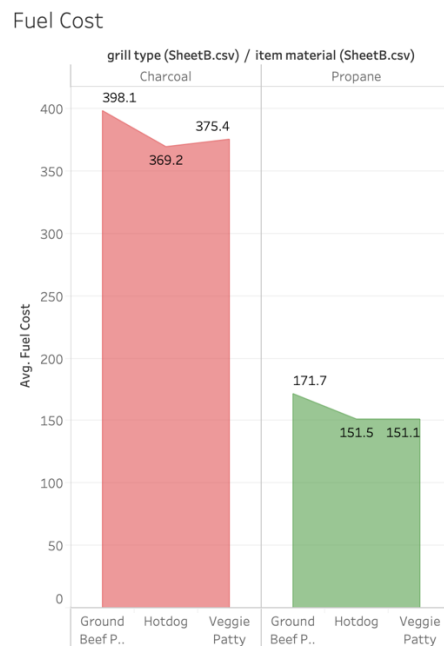
The propane/gas griller has more market share than the charcoal grill.

**Note that this also includes some households which would have both the charcoal and the gas grill accounting for 64% market share for the propane grill

- Based on the cookoff data which grill type cost more fuel on a long run?

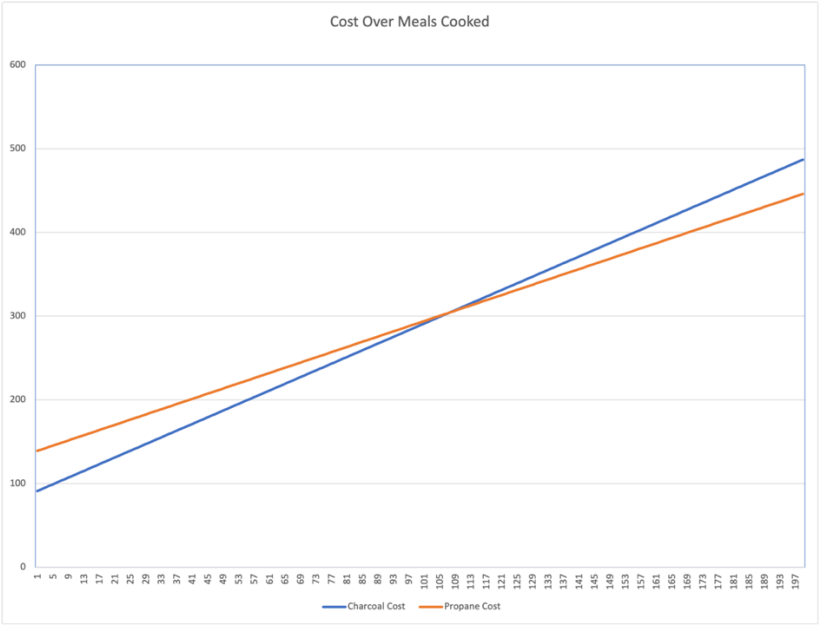
We can see that the initial investment is lower for the charcoal grill but with a slightly higher operating cost compared to the propane grill.

Propane griller is cheaper to operate in long term.



- Considering that the average American grill owner buys a new grill every three years, which grill type would cost more based on the fuel cost and initial investment?

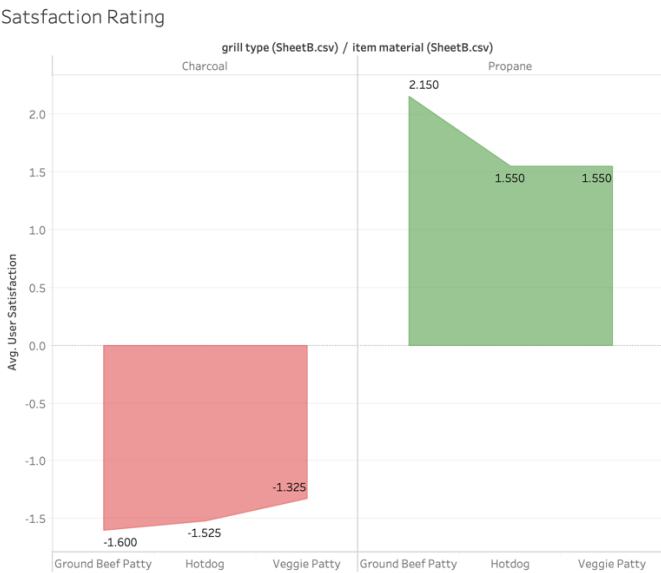
Assuming the average 16-18 meals cooked in a griller over the summer in United States we can see that in the three-year lifecycle of a griller we would cook a total of 48-54 meals in which case charcoal would be a cheaper option; but in case where someone plans to cook more than 107 meals within three years propane would seem to be here cheaper alternate.



- Which grill type is easier to use based on the user satisfaction score? Based on data, which grill is preferred? What factors might play a role?

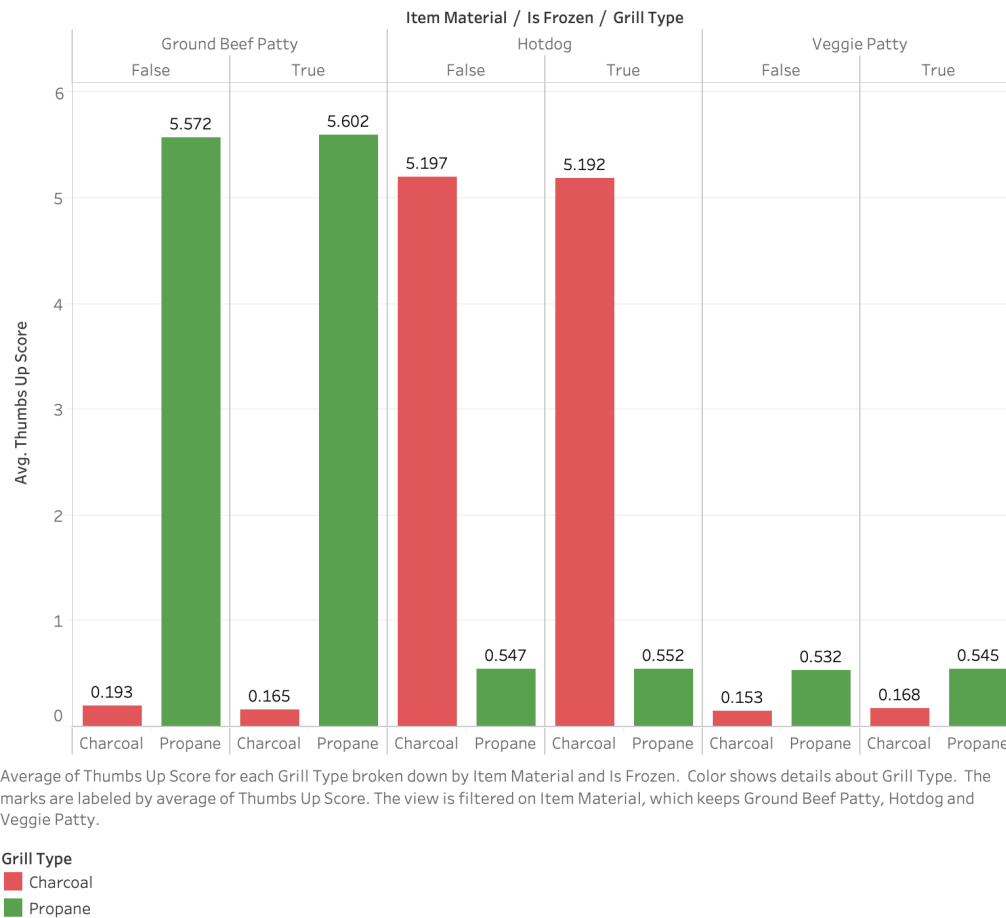
SATISFACTION

Comparing the satisfaction score we can clearly see that the propane griller is much easier to use. In addition to ease of use it also takes lesser time to Preheat and has no disposal issues



TASTE

Taste Score



If we trace the general trend, we can see that the charcoal grill on an average rating outperforms the gas grill two out of 12 instances.

You can also see the details test result in the file (Cross Tab Comparison) where the propane griller came out on top winning 75 out of 90 experiment groups for taste.

Another subtle detail regarding guessing the overall taste for all three food item types was pretty much dead even for both the grill types.

- Please generate an aggregated dataset to present your conclusions.

Cross Tab Comparison.xlsx

- Are your recommendations to the manufacturer different to recommendations you'd make to the user?

For a common user my recommendation would be to go with the propane griller as it beats the charcoal grill in taste, user satisfaction, ease of use but comes at a slight expensive cost.

My recommendation to the manufacturer will mostly base on the type of manufacturer:

- A Charcoal Grill manufacturer should advertise the cost factor associated with the using a grill for 3 years and Charcoal being a cheaper alternate
- Propane grill manufacturer should be recommended to promote their ease of use and taste over a Charcoal grill.

The Manufacturers can use marketing strategies around their strong points.

(Bonus) Transform SheetC.json to SheetC.csv

- File linked

DASHBOARD

The dashboard here can give us really powerful insights such as the test distinction based on different types of food, whether the food is frozen or non-frozen etc.

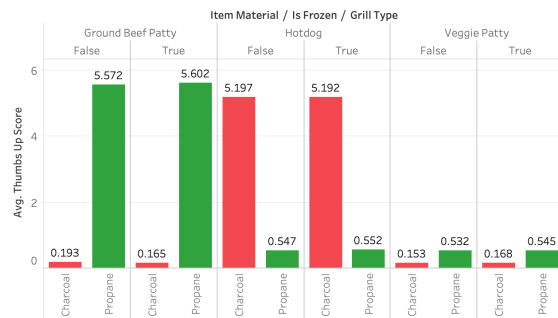
I will be sharing a file with the dashboard and will also be posted in the following online link which would be valid only until I hear back regarding my application.

[Link](#)

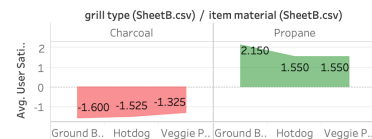
Screenshot of the dashboard

PROPANE GRILL V/S CHARCOAL GRILL

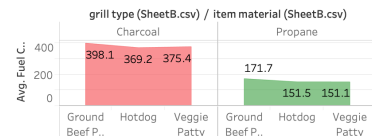
Taste Score



Satisfaction Rating



Fuel Cost



Item Material

- ☒ (All)
- ☒ Ground Beef Patty
- ☒ Hotdog
- ☒ Veggie Patty

Is Frozen

- ☒ (All)
- ☒ False
- ☒ True

Grill Type

- ☒ Charcoal
- ☒ Propane

Points to note while reading values in the dashboard:

* The even indexes correspond to frozen meat experiments and the odd indexes correspond to non-frozen meat experiments.

Taste Distinction

Grill Type	Guess Grill Correct	False	True
Charcoal	38	322	
Propane	39		321

Experiment Group comparison

Sample Ite..	Is Frozen / Item Material / Grill Type											
	False				True							
	Ground Beef Patty	Charcoal	Propane		Ground Beef Patty	Charcoal	Propane		Ground Beef Patty	Charcoal	Propane	
1		0.175	5.925			5.175	0.650			0.175	5.325	
2										5.075	0.650	
3		0.225	5.525			5.075	0.425			0.200	0.500	
4										0.200	5.600	
5		0.175	5.200			5.275	0.325			0.075	5.625	
6										5.200	0.300	
7		0.225	5.450			5.175	0.325			0.025	0.750	
8										0.125	0.300	
9		0.125	5.600			5.175	0.675					
10						0.000	0.475			0.200	5.200	

- Briefly describe the data and what transformations you performed.

Because of the size of the data I have performed all the transformations in tableau and Excel but the same can be done in python (which is more time efficient if dataset is large) using pandas group by (Grill type, Is_frozen, Item_aterial) and aggregating average, then using Melt to get desired values into columns to get data in the same form as in the cross tab form.

Observations:

- The overall taste distinction between the two grill types can me clearly made based on the experiment.

Ground Beef Patty

Grill Type	Guess Grill Correct	
	False	True
Charcoal	18	102
Propane	4	116

HotDog

Grill Type	Guess Grill Correct	
	False	True
Charcoal	7	113
Propane	21	99

Veggy Patty

Grill Type	Guess Grill Correct	
	False	True
Charcoal	13	107
Propane	14	106

- This also clearly shows us that the food which loses water on cooking is more likely to give higher accuracy in predicting the Charcoal taste, which again proves the point as in the video.